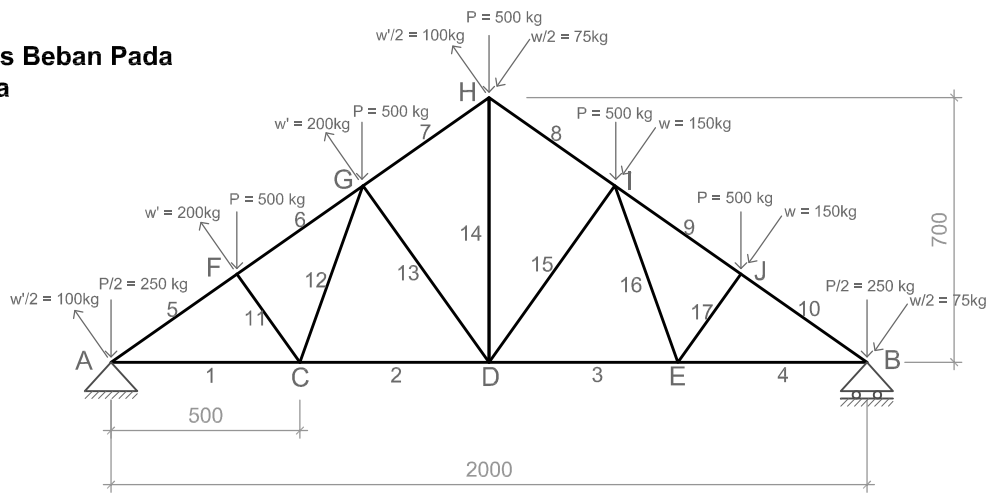
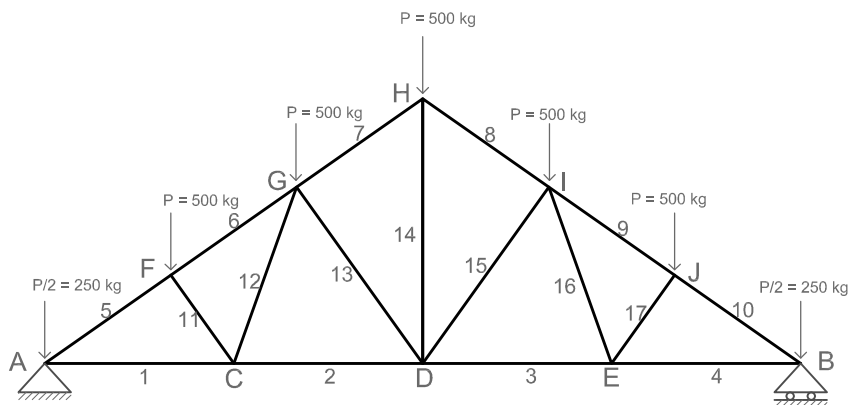


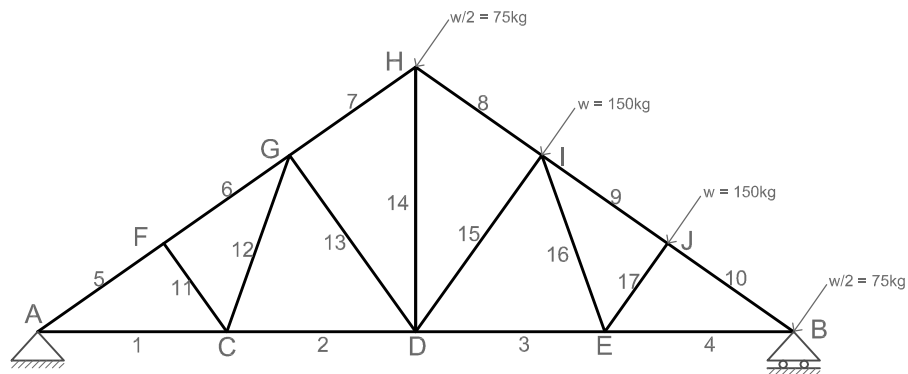
A. Analisis Beban Pada kuda-kuda



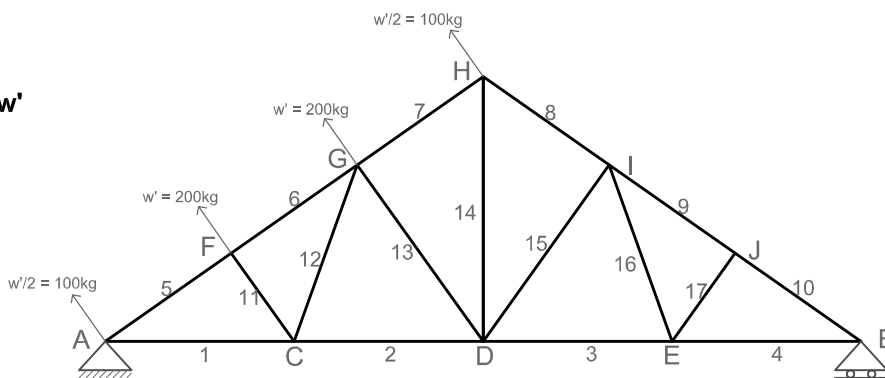
1. Beban P



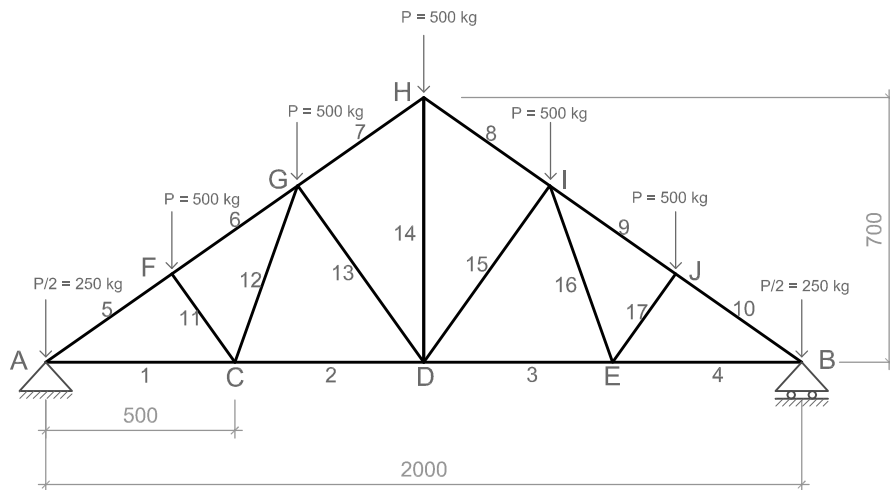
2. Beban w



3. Beban w'



B. Mencari Gaya Luar yang di sebabkan beban P



- Menghitung Reaksi tumpuan

$$\Sigma V = 0$$

$$A_v + B_v = P/2 + P + P + P + P + P + P/2$$

$$A_v + B_v = 250 + 500 + 500 + 500 + 500 + 500 + 250$$

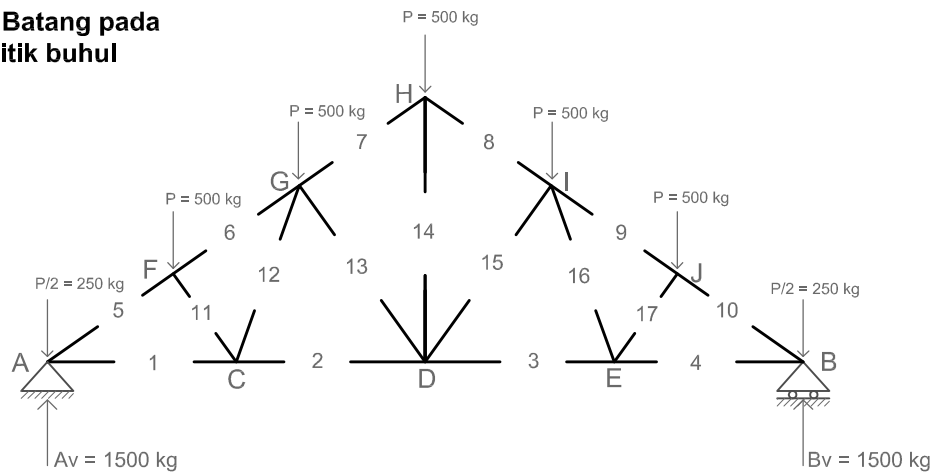
$$A_v + B_v = 3000 \text{ kg}$$

Karena simetris maka $A_v = B_v = 3000 / 2 = 1500 \text{ kg}$

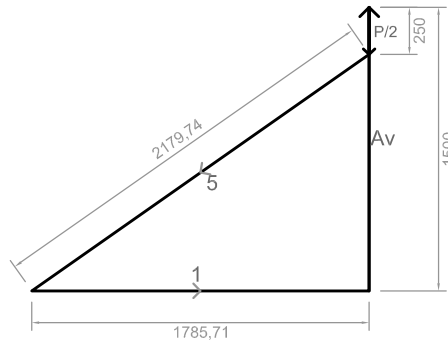
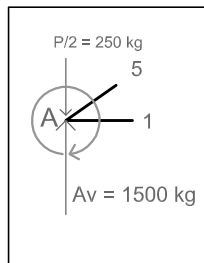
$$A_v = 1500 \text{ kg}$$

$$B_v = 1500 \text{ kg}$$

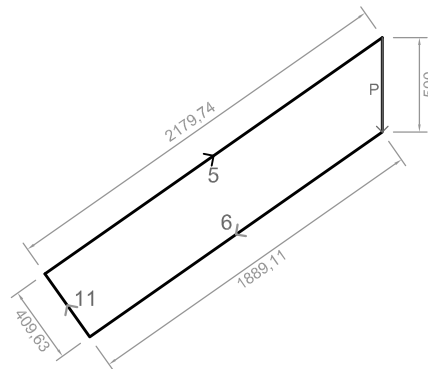
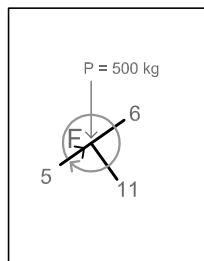
C. Melukis Gaya Batang pada masing masing titik buhul



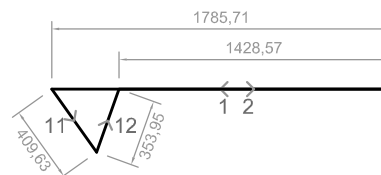
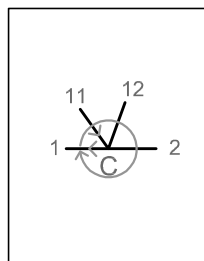
Titik Buhul A
(A_v) - ($P/2$) - 5 - 1



Titik Buhul F
(5) - (P) - 6 - 11

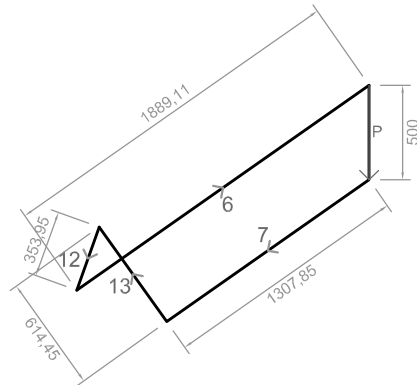
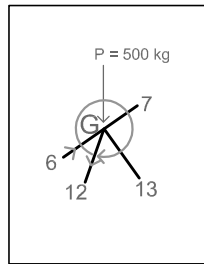


Titik Buhul C
(1) - (11) - 12 - 2

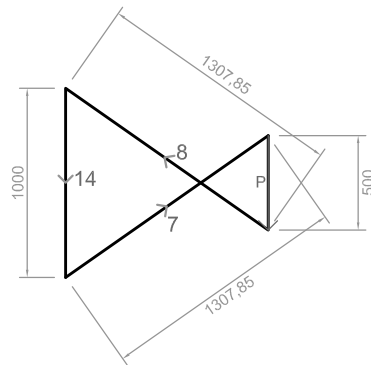
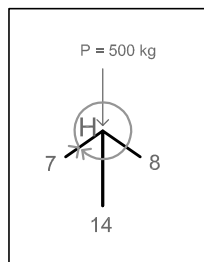


Skala:
1 cm = 400 kg

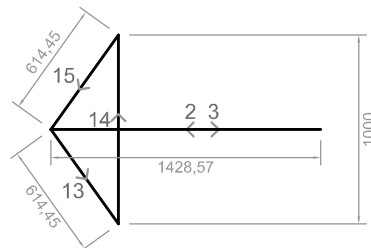
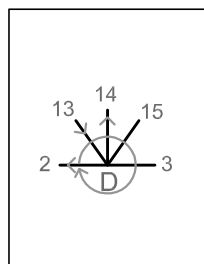
Titik Buhul G
(12) - (6) - (P) - 7 - 13



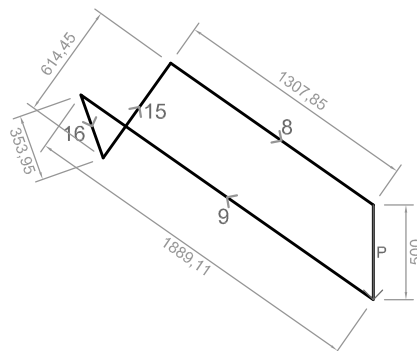
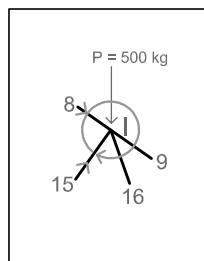
Titik Buhul H
(7) - (P) - 8 - 14



Titik Buhul D
(2) - (13) - (14) - 15 - 3

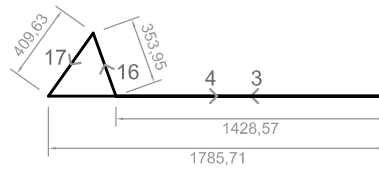
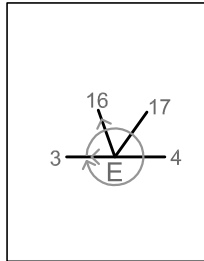


Titik Buhul I
(15) - (8) - (P) - 9 - 16

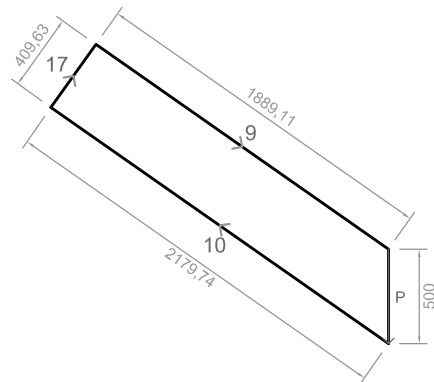
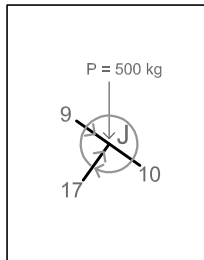


Skala:
1 cm = 400 kg

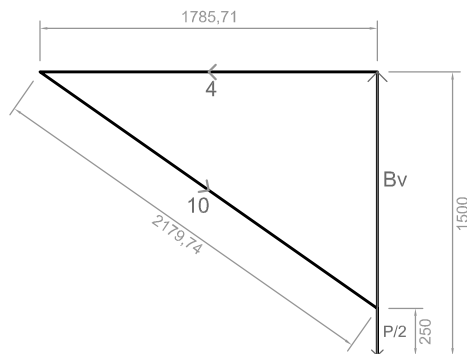
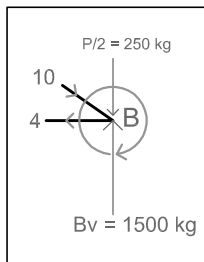
Titik Buhul E
(3) - (16) - 17 - 4



Titik Buhul J
(17) - (9) - (P) - 10

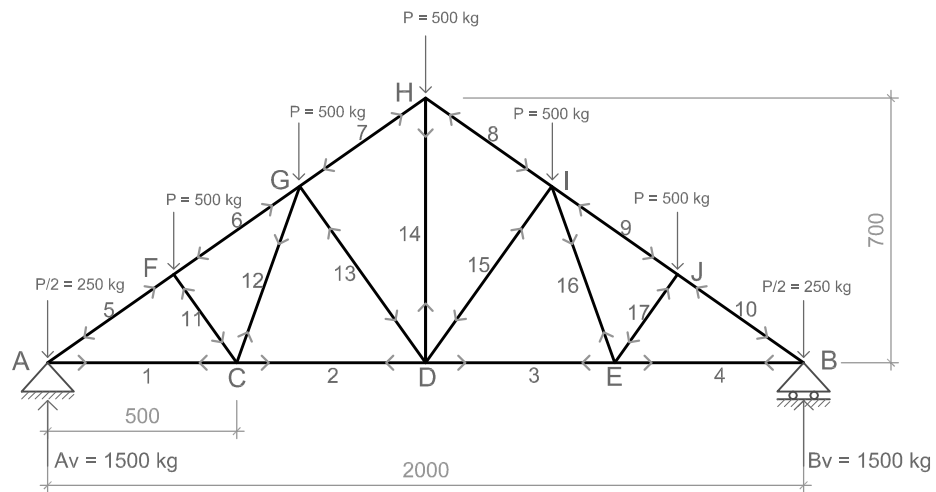


Titik Buhul B
(4) - (10) - (P/2) - (Bv)



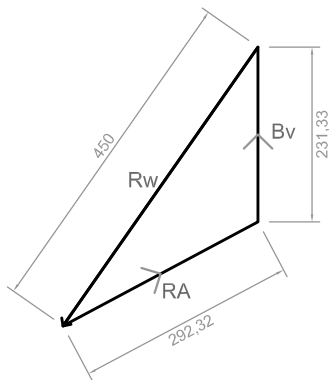
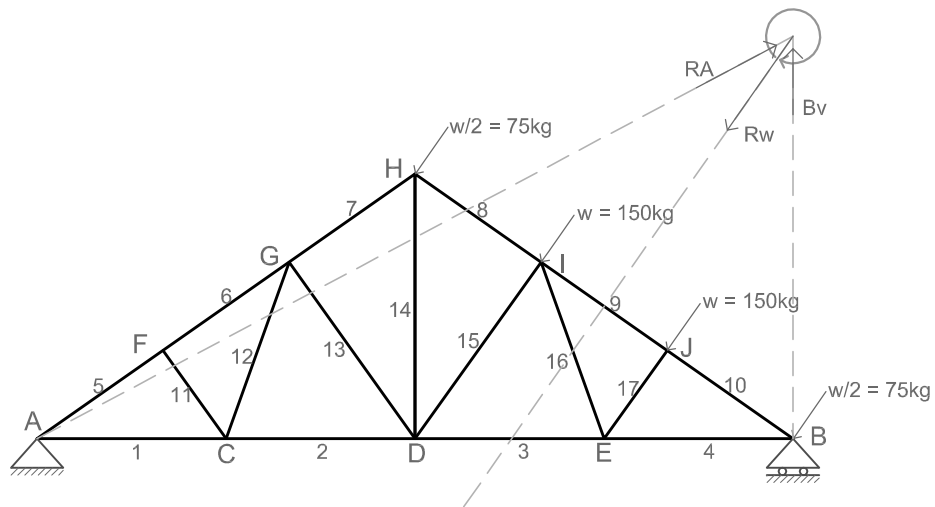
Skala:
1 cm = 400 kg

D. Membuat Tabel gaya batang pengaruh beban P

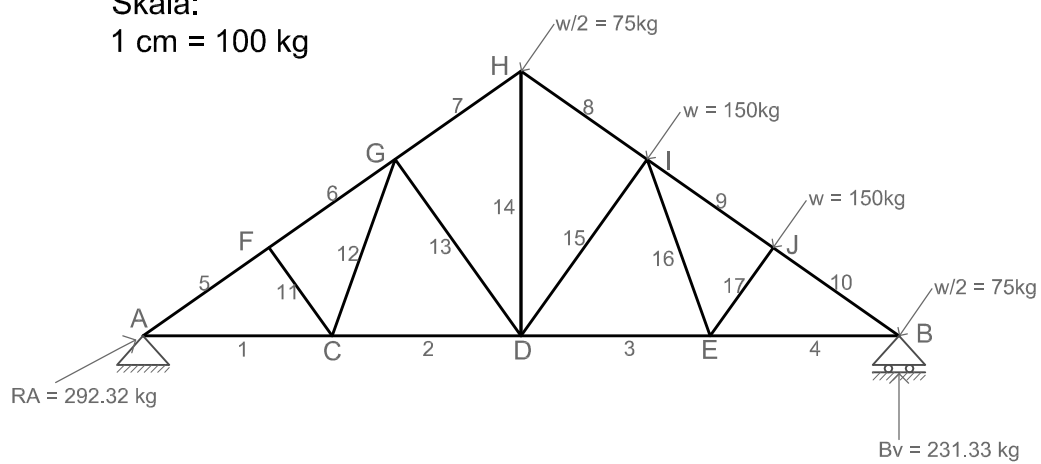


No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1		1785.71
2		1428.57
3		1428.57
4		1785.71
5	2179.74	
6	1889.11	
7	1307.85	
8	1307.85	
9	1889.11	
10	2179.74	
11	409.63	
12		353.95
13	614.45	
14		1000
15	614.45	
16		353.95
17	409.63	

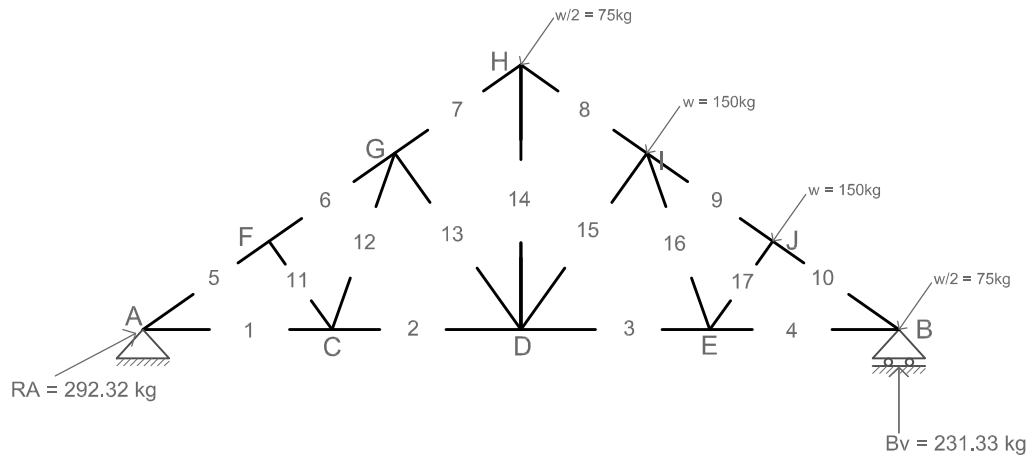
E. Mencari Gaya Luar yang di sebabkan beban w



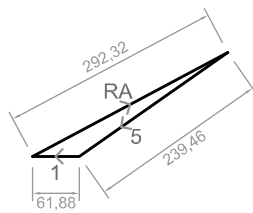
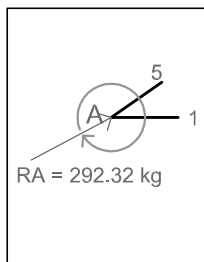
Skala:
1 cm = 100 kg



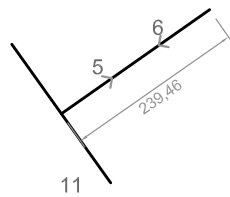
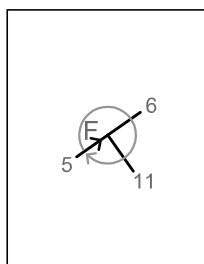
F. Melukis Gaya Batang pada masing masing titik buhul



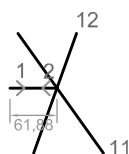
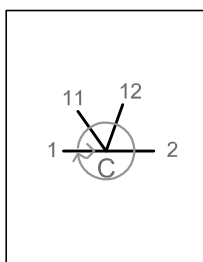
Titik Buhul A
(Av) - 5 - 1



Titik Buhul F
(5) - 6 - 11

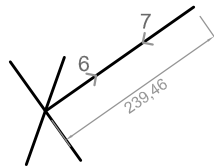
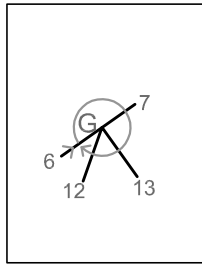


Titik Buhul C
(1) - (11) - 12 - 2

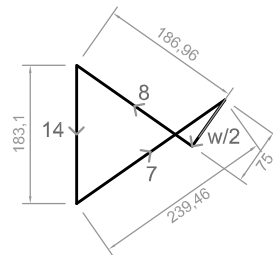
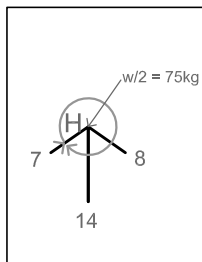


Skala:
1 cm = 100 kg

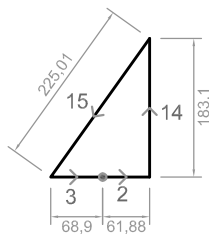
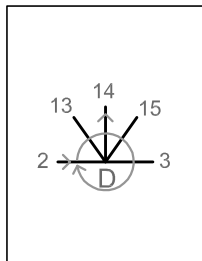
Titik Buhul G
(12) - (6) - 7 - 13



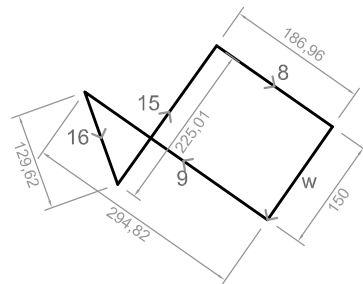
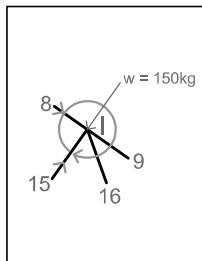
Titik Buhul H
(7) - (w/2) - 8 - 14



Titik Buhul D
(2) - (13) - (14) - 15 - 3

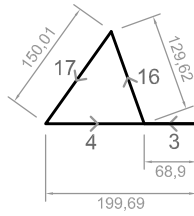
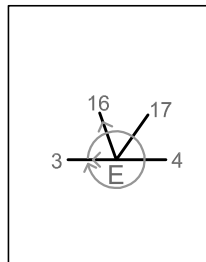


Titik Buhul I
(15) - (8) - (w) - 9 - 16

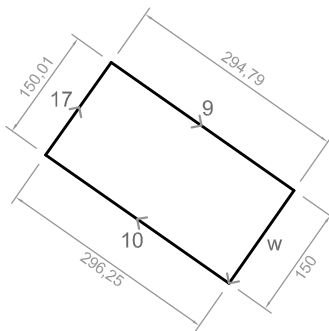
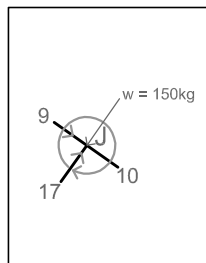


Skala:
1 cm = 100 kg

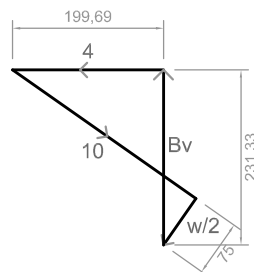
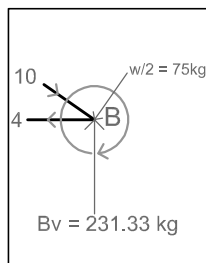
Titik Buhul E
(3) - (16) - 17 - 4



Titik Buhul J
(17) - (9) - (w) - 10

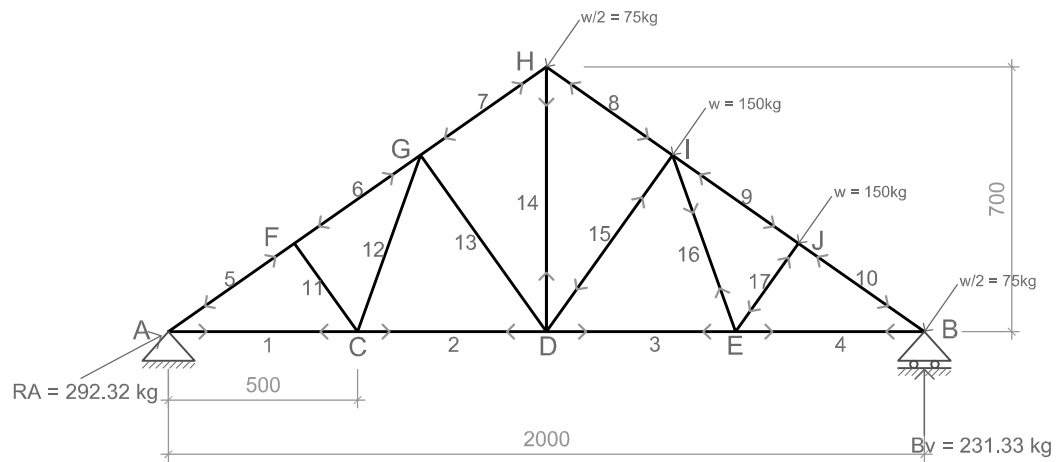


Titik Buhul B
(4) - (10) - (P/2) - (Bv)



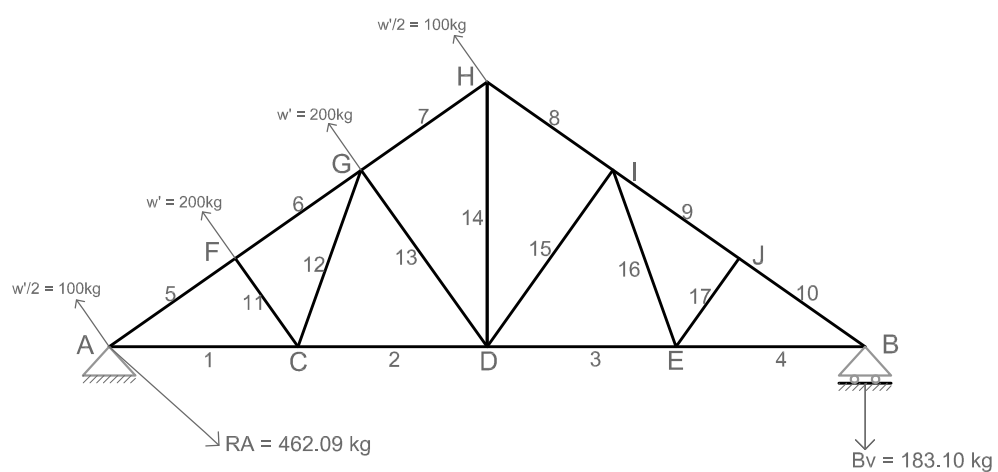
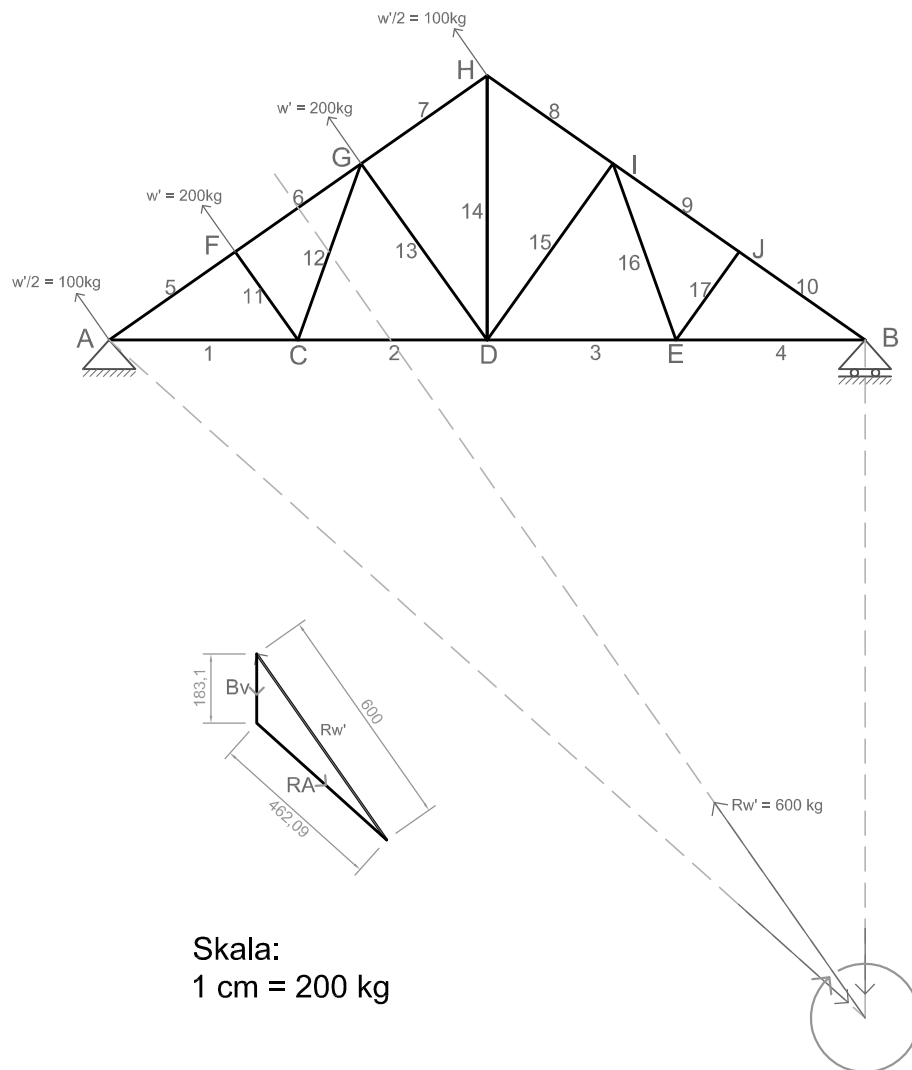
Skala:
1 cm = 100 kg

G. Membuat Tabel gaya batang pengaruh beban w

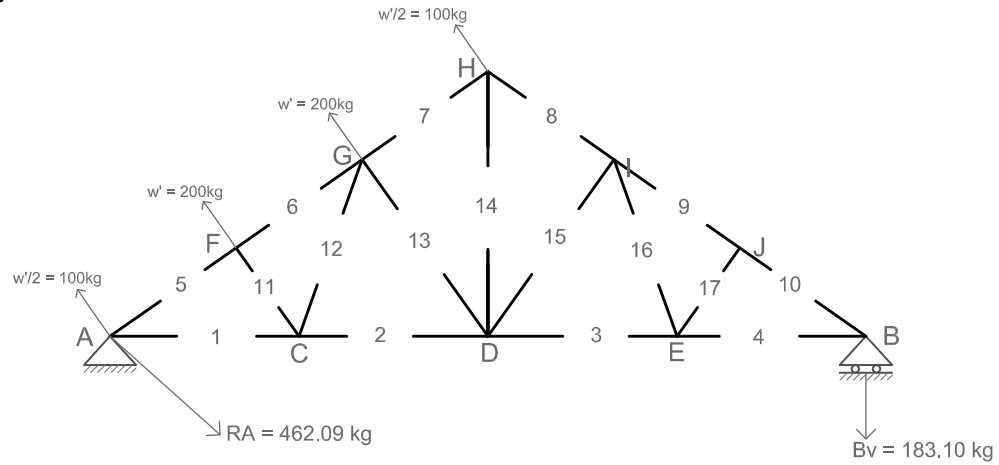


No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1	61.88	
2	61.88	
3		68.90
4		199.69
5	239.46	
6	239.46	
7	239.46	
8	186.96	
9	294.82	
10	296.25	
11	0	0
12	0	0
13	0	0
14		183.10
15	225.01	
16		129.62
17	150.01	

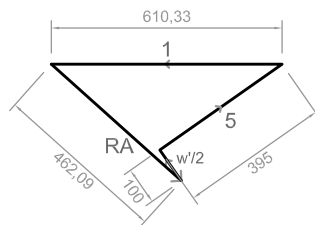
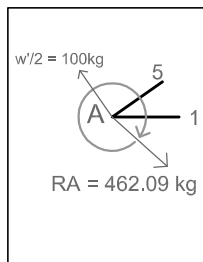
H. Mencari Gaya Luar yang di sebabkan beban w'



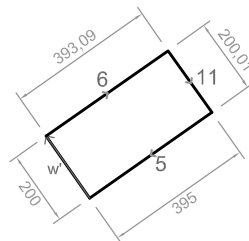
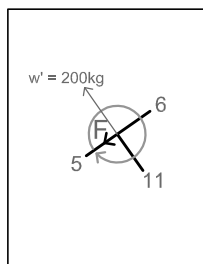
I. Melukis Gaya Batang pada masing masing titik buhul



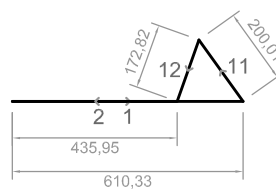
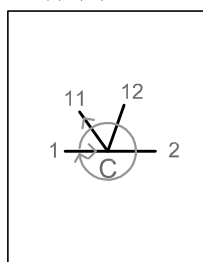
Titik Buhul A
(Av) - (w/2) - 5 - 1



Titik Buhul F
(5) - (w') - 6 - 11

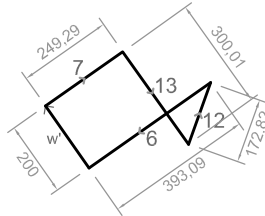
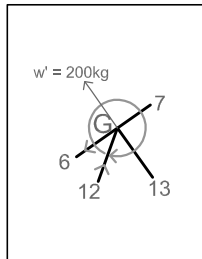


Titik Buhul C
(1) - (11) - 12 - 2

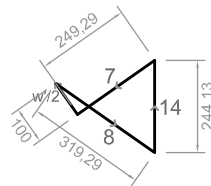
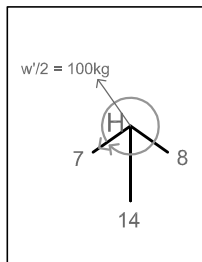


Skala:
1 cm = 200 kg

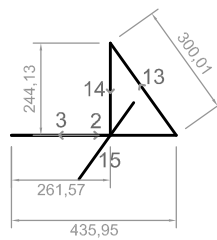
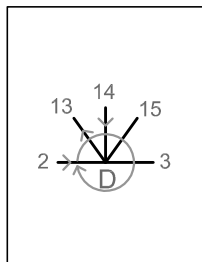
Titik Buhul G
(12) - (6) - (w') - 7 - 13



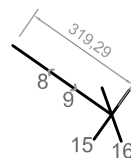
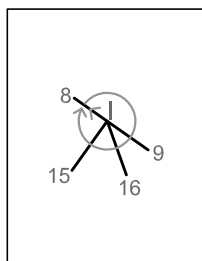
Titik Buhul H
(7) - (w/2) - 8 - 14



Titik Buhul D
(2) - (13) - (14) - 15 - 3

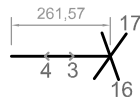
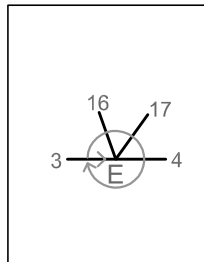


Titik Buhul I
(8) - 9 - 16 - (15)

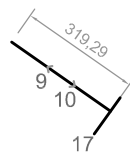
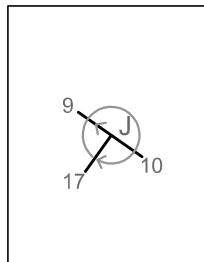


Skala:
1 cm = 200 kg

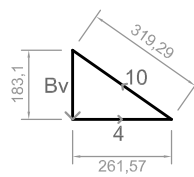
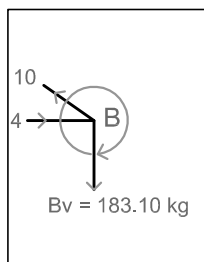
Titik Buhul E
(3) - (16) - 17 - 4



Titik Buhul J
(17) - (9) - (w) - 10

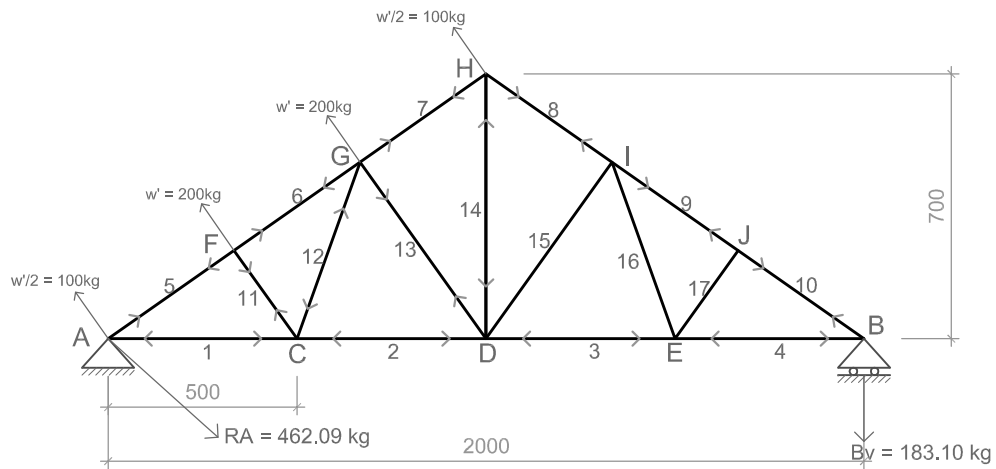


Titik Buhul B
(4) - (10) - (P/2) - (Bv)



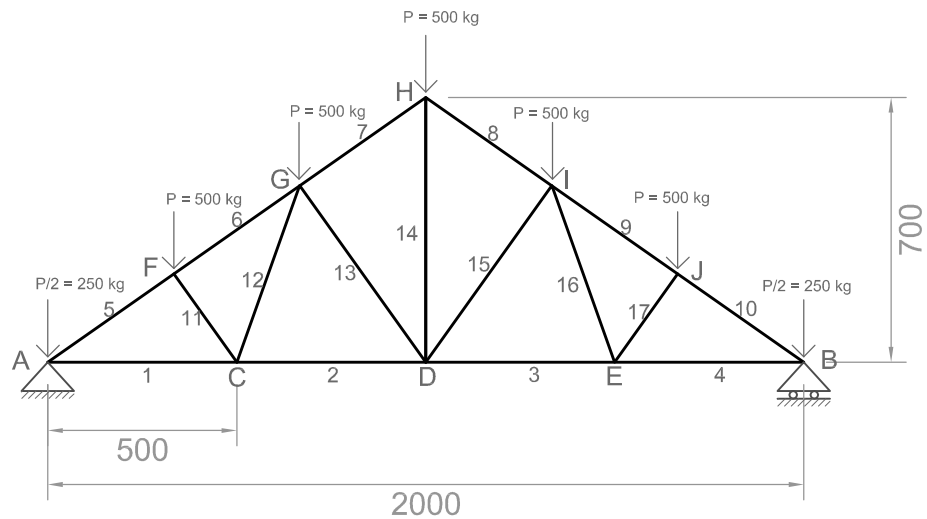
Skala:
1 cm = 200 kg

J. Membuat Tabel gaya batang pengaruh beban w'



No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1	610.33	
2	435.95	
3	261.57	
4	261.57	
5		395.00
6		393.09
7		249.29
8		319.29
9		319.29
10		319.29
11		200.01
12	172.82	
13		300.01
14	244.13	
15	0	0
16	0	0
17	0	0

K. Mencari Gaya Luar yang di sebabkan beban P



- Menghitung Reaksi tumpuan

$$\Sigma V = 0$$

$$A_v + B_v = P/2 + P + P + P + P + P + P/2$$

$$A_v + B_v = 250 + 500 + 500 + 500 + 500 + 500 + 250$$

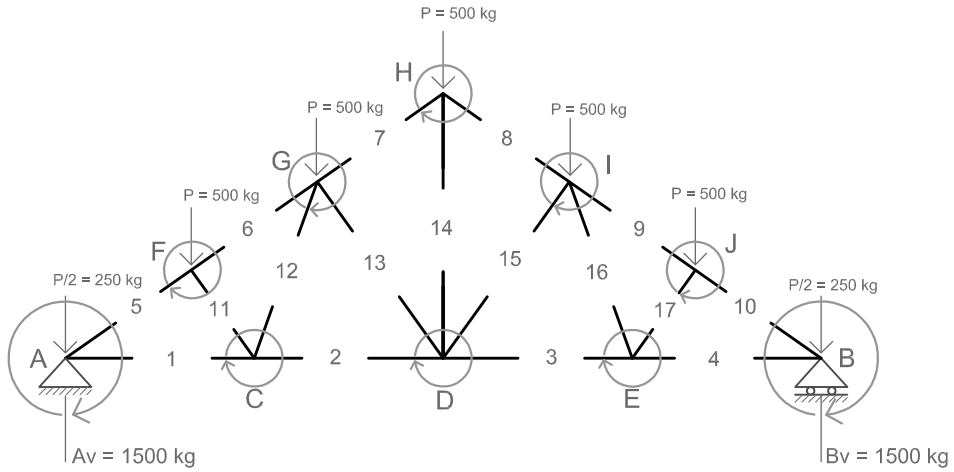
$$A_v + B_v = 3000 \text{ kg}$$

Karena simetris maka $A_v = B_v = 3000 / 2 = 1500 \text{ kg}$

$$A_v = 1500 \text{ kg}$$

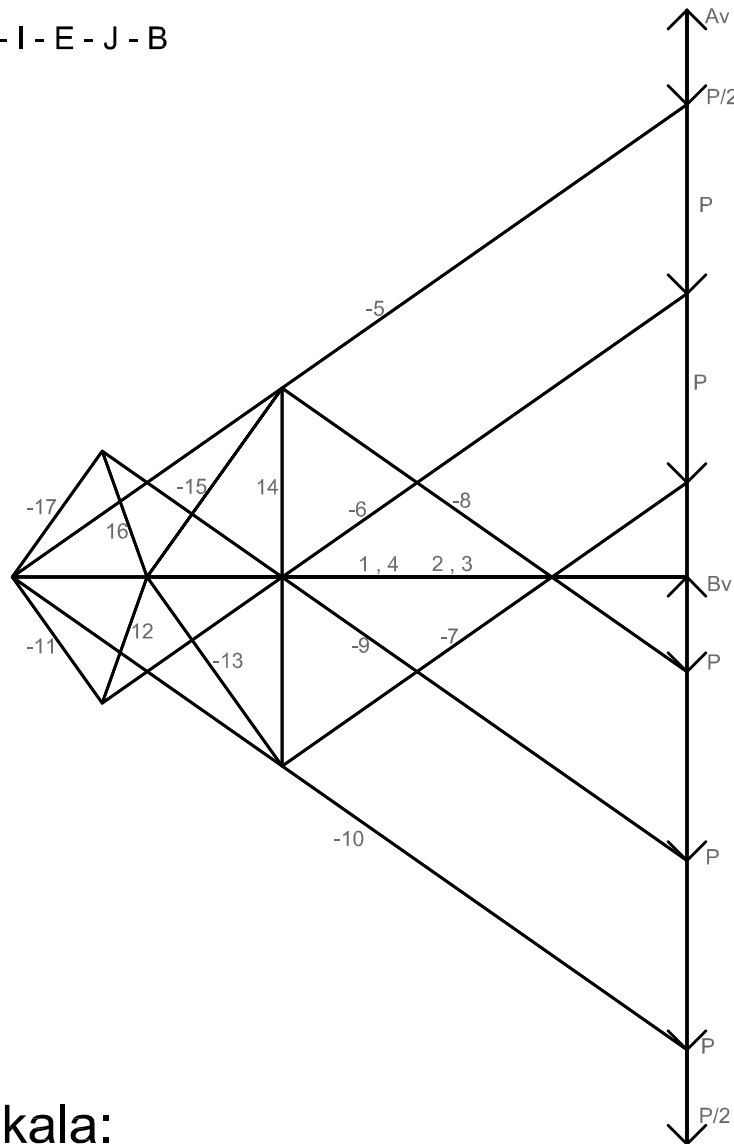
$$B_v = 1500 \text{ kg}$$

L. Melukis Gaya Batang menggunakan Cremona pengaruh beban P



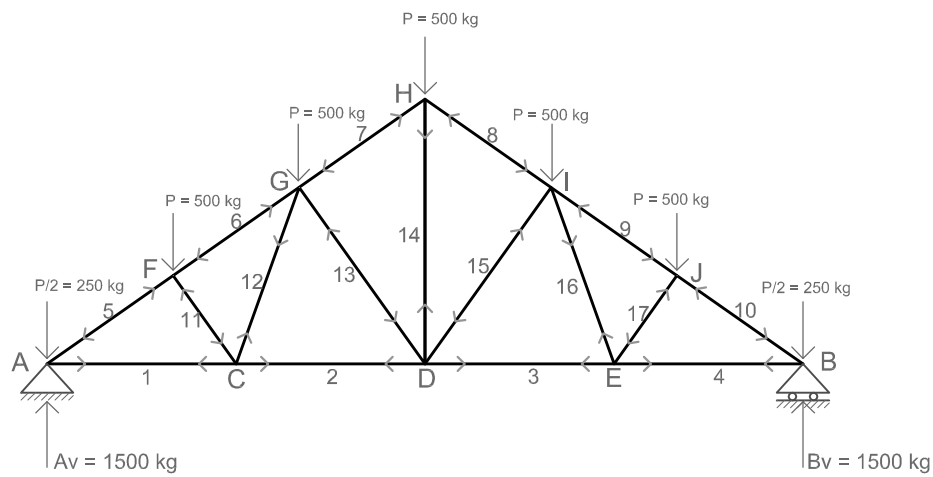
Urutan simpul

A - F - C - G - H - D - I - E - J - B



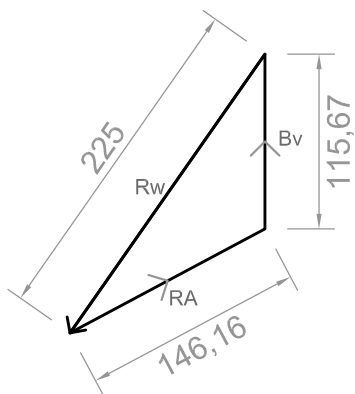
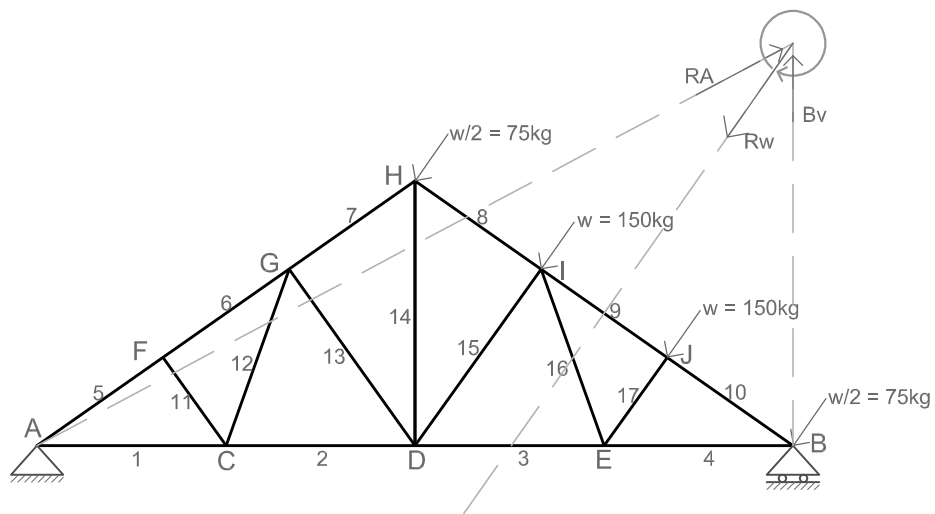
Skala:
1 cm = 200 kg

M. Membuat Tabel gaya batang pengaruh beban P

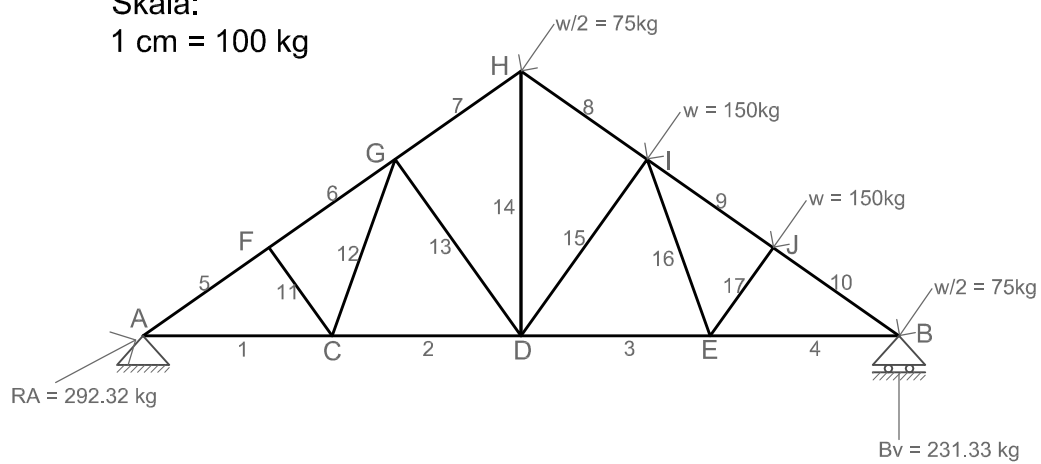


No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1		1785.71
2		1428.57
3		1428.57
4		1785.71
5	2179.74	
6	1889.11	
7	1307.85	
8	1307.85	
9	1889.11	
10	2179.74	
11	409.63	
12		353.95
13	614.45	
14		1000
15	614.45	
16		353.95
17	409.63	

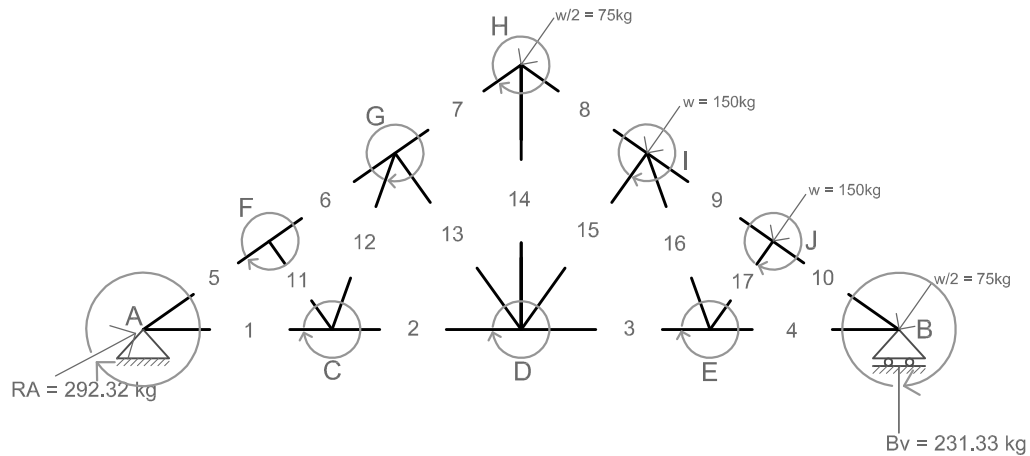
M. Mencari Gaya Luar yang di sebabkan beban w



Skala:
1 cm = 100 kg

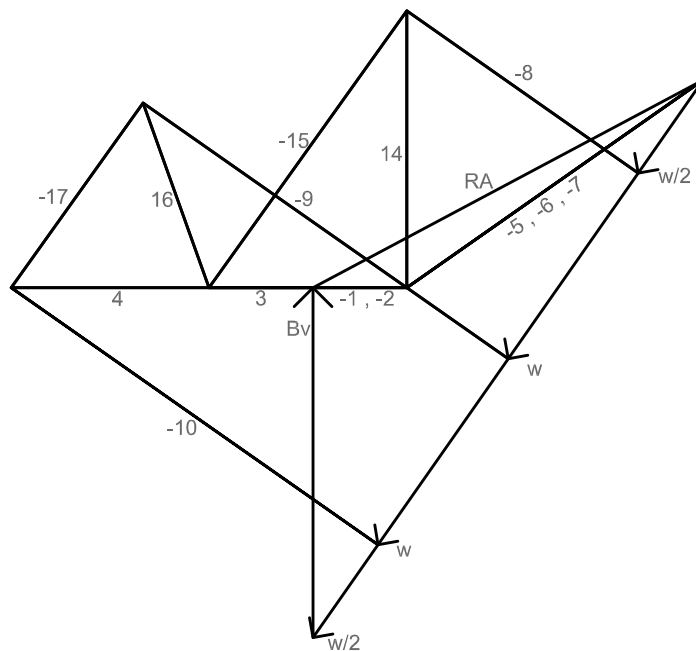


**N. Melukis Gaya Batang menggunakan Cremona
pengaruh beban w**



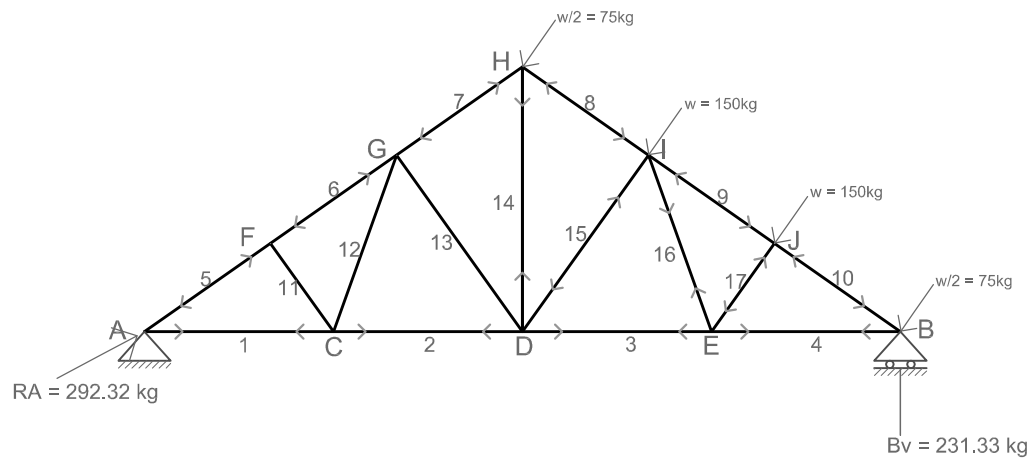
Urutan simpul

A - F - C - G - H - D - I - E - J - B



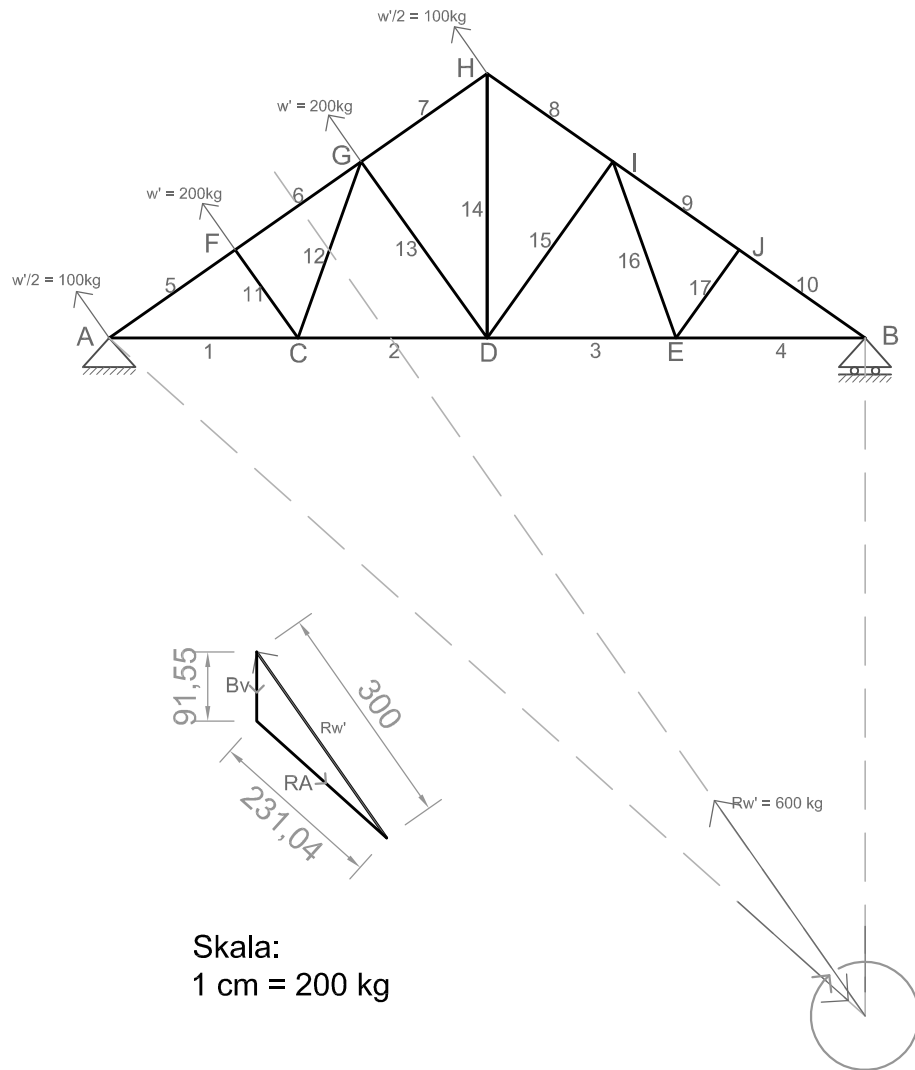
Skala:
1 cm = 50 kg

O. Membuat Tabel gaya batang pengaruh beban w

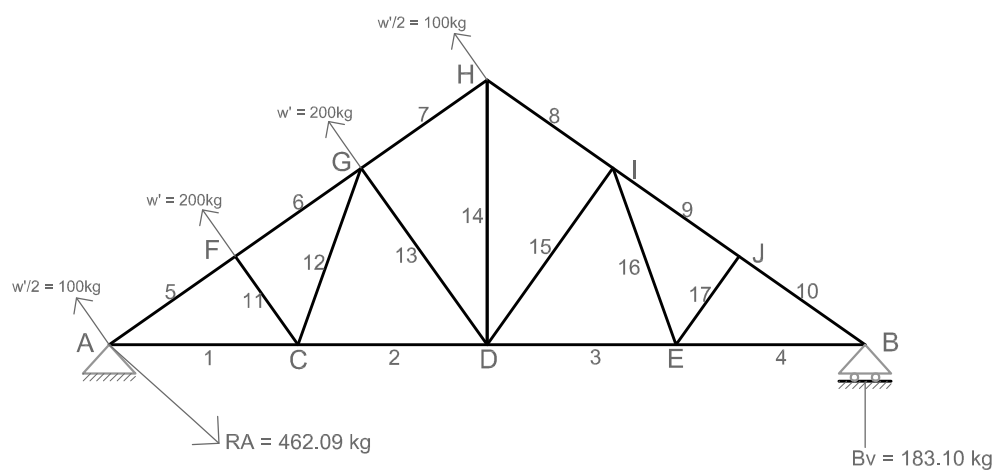


No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1	61.88	
2	61.88	
3		68.90
4		199.69
5	239.46	
6	239.46	
7	239.46	
8	186.96	
9	294.82	
10	296.25	
11	0	0
12	0	0
13	0	0
14		183.10
15	225.01	
16		129.62
17	150.01	

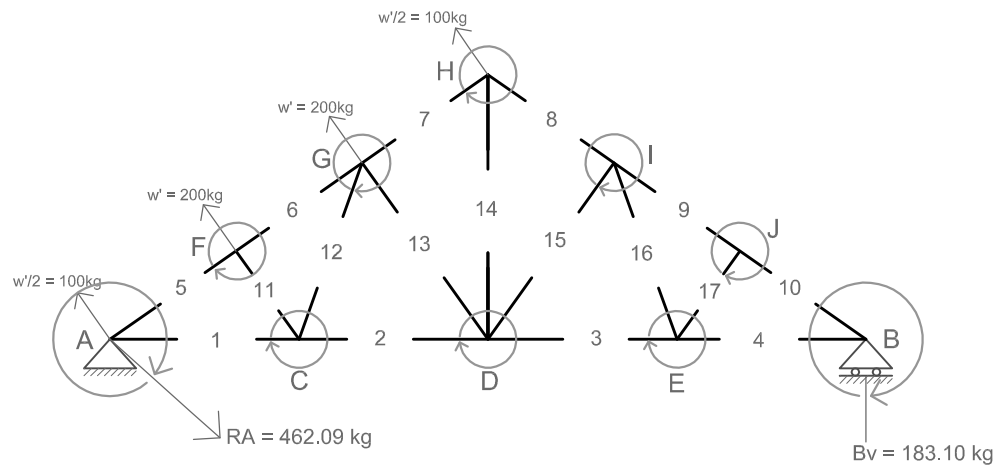
P. Mencari Gaya Luar yang di sebabkan beban w'



Skala:
1 cm = 200 kg

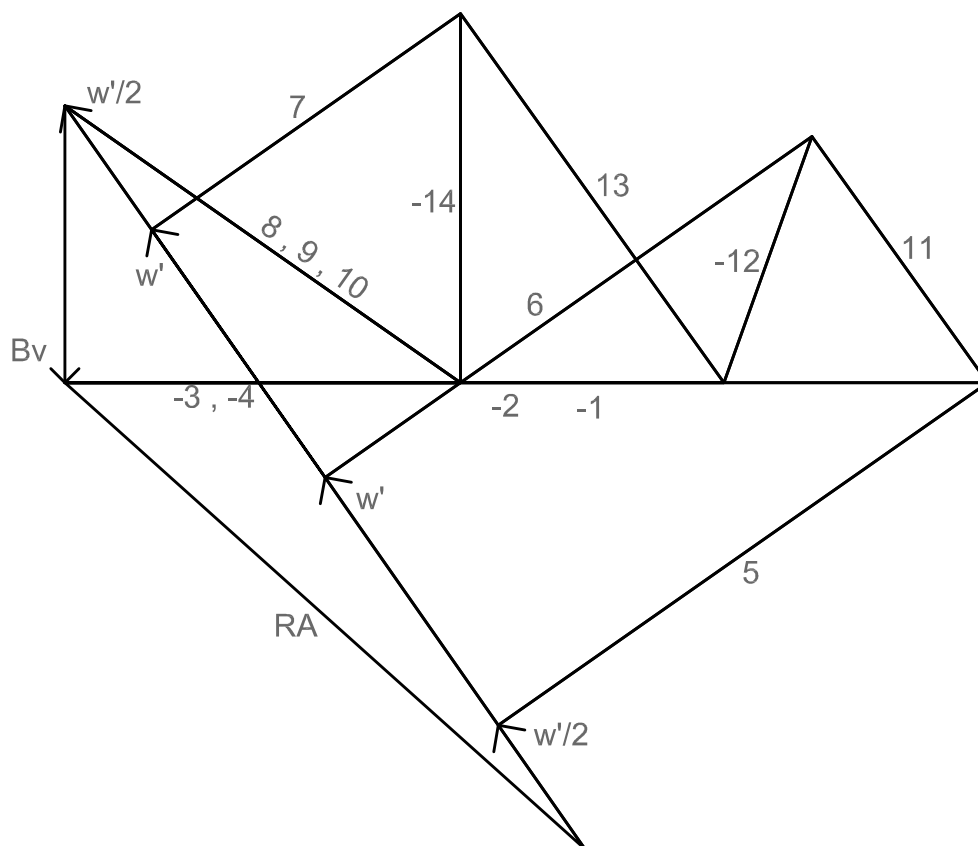


**O. Melukis Gaya Batang menggunakan Cremona
pengaruh beban w'**



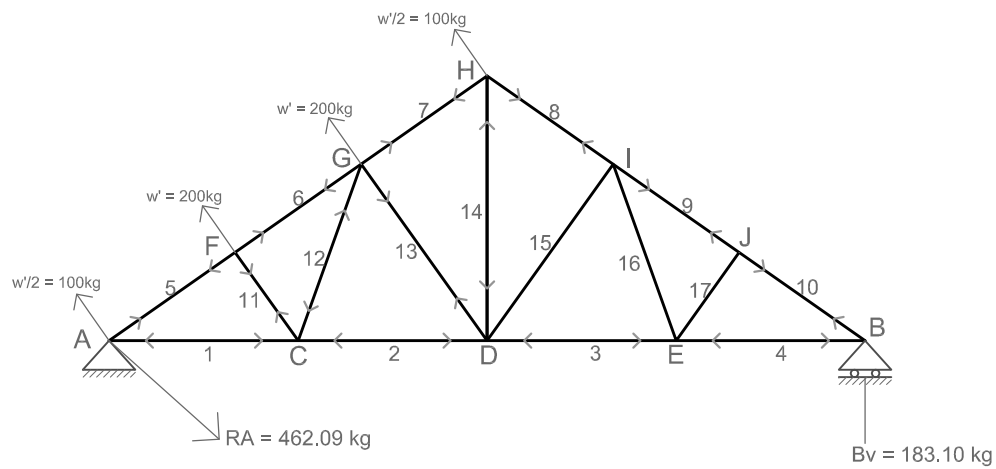
Urutan simpul

A - F - C - G - H - D - I - E - J - B

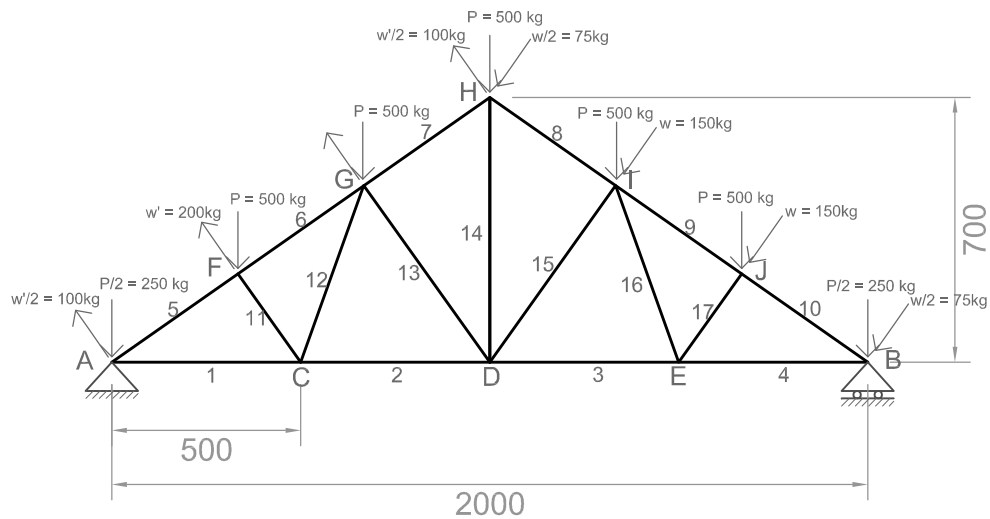


Skala:
1 cm = 50 kg

P. Membuat Tabel gaya batang pengaruh beban w'



No. Btg	Gaya Batang (kg)	
	Tekan (-)	Tarik (+)
1	610.33	
2	435.95	
3	261.57	
4	261.57	
5		395.00
6		393.09
7		249.29
8		319.29
9		319.29
10		319.29
11		200.01
12	172.82	
13		300.01
14	244.13	
15	0	0
16	0	0
17	0	0



Q. Rekapitulasi Gaya Batang

No. Btg	Pengaruh P (kg)		Pengaruh w (kg)		Pengaruh w' (kg)		Total (kg)	
	Tekan (-)	Tarik (+)	Tekan (-)	Tarik (+)	Tekan (-)	Tarik (+)	Tekan (-)	Tarik (+)
1	0	1785.71	61.88	0	610.33	0	672.21	1785.71
2	0	1428.57	61.88	0	435.95	0	497.83	1428.57
3	0	1428.57	0	68.90	261.57	0	261.57	1497.47
4	0	1785.71	0	199.69	261.57	0	261.57	1985.40
5	2179.74	0	239.46	0	0	395.00	2419.20	395.00
6	1889.11	0	239.46	0	0	393.09	2128.57	393.09
7	1307.85	0	239.46	0	0	249.29	1547.31	249.29
8	1307.85	0	186.96	0	0	319.29	1494.81	319.29
9	1889.11	0	294.82	0	0	319.29	2183.93	319.29
10	2179.74	0	296.25	0	0	319.29	2475.99	319.29
11	409.63	0	0	0	0	200.01	409.63	200.01
12	0	353.95	0	0	172.82	0	172.82	353.95
13	614.45	0	0	0	0	300.01	614.45	300.01
14	0	1000	0	183.10	244.13	0	244.13	1183.10
15	614.45	0	225.01	0	0	0	839.46	0
16	0	353.95	0	129.62	0	0	0	483.57
17	409.63	0	150.01	0	0	0	559.64	0